OBSERVATIONS ON THE BEHAVIOR OF THE SPOTTED SKUNK IN FLORIDA

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Relatively little is known concerning the general biology of the spotted skunk, *Spilogale putorius*. Various aspects of the animal's life history and behavior have been described by Howell (1920), Johnson (1921), Mitchell (1923), Walter (1930) and Van Gelder (1953). This paper is based on data gathered while live-trapping the Florida spotted skunk, *Spilogale putorius ambarvalis* Bangs, and observations on captive individuals during the period from 22 November 1956 to 6 April 1958. Individuals kept in captivity were housed in laboratory cages and usually observed for periods of from 7 to 60 days.

I am indebted to Dr. James N. Layne for suggestions and helpful criticism in the preparation of this manuscript.

Habitat and population.—Field observations and trapping were carried on in a coastal scrub habitat 7 miles south of Daytona Beach, Volusia County, Florida. This xeric plant association is characterized by a dense low growth of palmetto and shrubs growing on loose, white sand. Other mammals recorded in this habitat included the beach mouse (*Peromyscus polionotus*), armadillo (*Dasypus novemcinctus*), opossum (*Didelphis marsupialis*), raccoon (*Procyon lotor*) and domestic cats.

Several types of simple box traps were used with equal success. The traps were baited with sardines and checked every two hours from dusk to dawn. Animals that were captured were transferred to cages and descented surgically the following morning. The area was trapped two nights each month with an average trap success of five skunks per 100 trap-nights. In all, 38 skunks (27 males, 11 females) were collected on a 1½ acre plot from 1956 to 1958. Nine of these were juveniles captured in February and March, 1958.

Activity.—The spotted skunk is generally nocturnal and is rarely encountered on nights with even a minimum of moonlight. An example of the effect of moonlight on activity is afforded by

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observations made on 4 April 1958. On this night, the moon, which was full, did not set until 3:30 a.m. No skunks were trapped prior to moon-set but 9 individuals were taken between 3:30 a.m. and sunrise (6:10 a.m.).

General observations indicate that on nights apparently suitable for continuous activity, there are two peaks of activity, one shortly after sunset and the other just prior to sunrise. Occasionally, however, individuals probably roam throughout a moonless night. James N. Layne has also observed a spotted skunk traveling in a shady hammock in the late afternoon.

One adult female kept in captivity for a period of 4½ months ceased nocturnal activity after the first four nights and thereafter was active during the day.

Captive skunks invariably slept with the head and forelegs tucked beneath the abdomen, the crown of the head, shoulders, hind feet, and tail being in contact with the floor of the cage.

Temperament.—In general the spotted skunk is secretive in its habits. Although the number of animals taken from the study area indicates that the population was quite sizable, a number of local residents were questioned and none reported ever having seen skunks in the vicinity. On one occasion a male was seen inside an empty tin-can along the edge of the road entering the study area. No dead specimens were found on the roads or highways in the vicinity of Daytona Beach, which verifies Van Gelder's (1958) observation that these animals stay close to the brush and are rarely seen in the open.

Occasionally, however, curiosity seems to overcome the spotted skunk's inherent shyness and it will advance cautiously to investigate a strange object, usually stamping its forefeet at each step forward. On one occasion in the field, an adult male entered my camp site and climbed onto a sleeping bag and investigated the occupant.

An individual kept in my home for 4½ months became quite tame. It would allow itself to be gently stroked but never to be picked up. The majority of captive skunks showed little inclination to bite, although one female consistently and viciously snapped at the slightest approach of a hand.

Locomotion.—Spotted skunks are excellent climbers and were observed in the top-most fronds of palmettos or in the branches of low trees. Seven captive individuals were housed in bird cages

equipped with several horizontal wooden bars. The animals were quite agile, as has also been noted by Howell (1920), and spent a great amount of time climbing about the bars and sides of the cage. Crabb (1944) has reported that several spotted skunks observed by him used their climbing ability as a means of escape. However, my observations indicate that such activity may also be exploratory.

Dens.—According to Crabb (1944), the requirements for the location of the den of the spotted skunk are complete darkness and protection from extremes of weather and natural enemies. The burrows of the gopher tortoise (*Gopherus polyphemus*) served as home-sites of skunks on the study area. Single specimens were taken at the entrances of occupied burrows except in two cases. In both of the latter instances, two females were captured at the entrance to the burrows. These were the only cases of apparent "community" dens observed.

Spotted skunks may shift their den site with some regularity, the only restriction being that the new den be vacant. Evidence for this is provided by the record of different animals trapped at one den over a period of about a year. A male was initially trapped at this den on 19 May 1957. Additional specimens were taken here on 26 July, 14 October, 19 November, 14 December, and 4 April 1958.

All dens from which skunks were taken were located between 1 and 4 feet from the nearest cover, such as bushes or palmetto clumps. One den situated in a rather open area with the nearest cover about 11 feet away was trapped consistently throughout the study without success. These data suggest that the proximity of cover may be an important criterion in the selection of a den site.

Voice.—I have heard spotted skunks utter only two sounds. One is a high-pitched screech similar to that of a blue-jay and the other is a series of throaty grunts. The former was heard whenever two individuals were in close association, as when placed in the same cage or in adjoining cages. The grunts were given by one animal that had just been transferred from trap to cage. Another vocalization that has been reported for *Spilogale* is a sharp bark (Johnson, 1921).

Food habits.—Captive spotted skunks consistently showed a preference for live foods although they would readily accept various substitutes. They devoured anything from table scraps to live snakes, including such items as raw and cooked beef, milk-soaked

bread, lizards, insects and fruit. They particularly relished live frogs although none were found in the Daytona Beach habitat. All live food was killed by rapid and vicious bites in the head and neck of the victim. It was only after the victim showed no further signs of life that it was consumed. Van Gelder (1953) has described the technique used by *Spilogale* in opening eggs.

Spotted skunks in captivity drank little water, usually not more than one or two ounces daily.

Social behavior.—The housing of two or more individuals in the same cage always resulted in conflict. On two occasions, two males were placed in the same cage. Within two hours in both instances, one of the males was found dead from bites and lacerations around the head and snout, the victor showing no signs of bodily injury. Several times, two females were placed in the same cage. No deaths occurred but the animals constantly raced around the cage keeping out of one another's way. In none of the encounters described above was there a discharge of musk, although the tails were always kept high over the back in the characteristic discharge position.

Defensive behavior.—Howell (1920) and Johnson (1921) described the "handstand" of the spotted skunk, although little is known about the details of this behavior. My observations indicate that there is a fairly definite pattern of defensive behavior closely associated with the distance between the skunk and the approaching intruder. When a trapped animal is approached to within a distance of 8 to 15 feet, it begins a rapid series of handstands, each lasting between 2 and 8 seconds. Reports of this distance vary from 12 feet (Howell, 1920) to 8 feet (Johnson, 1921) and the duration of each handstand from 2 (Johnson, 1921) to 5 seconds (Walter, 1930). Throughout the duration of the handstand, the hindlegs are spread laterally and the bristled tail is kept perpendicular to the ground. The animal advances and retreats on its forelegs only a few inches, apparently to maintain balance. When the observer comes to within about 8 feet of a skunk, it immediately drops to all fours and assumes a horseshoe-shaped stance with the anus and head directed towards the person. Frequently, skunks stamp their forefeet before, after, and in the case of one old male, during the handstand. Johnson (1921) reported that each handstand was accompanied by a musk discharge directed over the head of the skunk toward the intruder. I did not observe this action.

The defensive behavior pattern described above was displayed by 37 of the 38 animals handled. The one exception was a male that did not execute the handstand. However, this individual died two days after capture, the cause of death apparently being a severe infection of the right forelimb.

In captivity, the defense behavior ceased to be elicited by humans after 4 or 5 days but was exhibited whenever the skunk was approached by a dog, cat, horse, or even by a mammal skin brought close to the cage. On one occasion a skunk was approached by a man on hands and knees and the animal immediately exhibited the defense reaction. The handstand behavior might be continued for as long as 8 minutes after the intruder was removed from the scene.

The discharge of the spotted skunk is not a "spray" but consists of two or three drops of fluid which are expelled up to a distance of 13 or 14 feet. At a distance of 5 feet, the discharge rarely reaches a height of 4 feet in its trajectory. The odor is that of a highly concentrated onion extract. Twice, I experienced getting small quantities of the musk in my eyes. Both times, it caused an intense burning sensation and left me totally blind for almost 10 minutes.

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